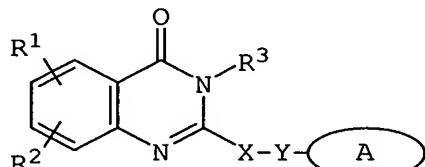


IN THE CLAIMS:

1. (Currently amended) A method of disrupting leukocyte function comprising a step of contacting leukocytes with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of C(R^b)₂, CH₂CHR^b, and CH=C(R^b);

Y is selected from the group consisting of null, S, SO, and SO₂, NH, O, C(=O), OC(=O), C(=O)O, and NHC(=O)CH₂S;

R¹ and R², independently, are selected from the group consisting of hydrogen, C₁₋₆alkyl, aryl, heteroaryl, halo, NHC(=O)C₁₋₃alkyleneN(R^a)₂, NO₂, OR^a, CF₃, OCF₃, N(R^a)₂, CN, OC(=O)R^a, C(=O)R^a, C(=O)OR^a, arylOR^b, Het, NR^aC(=O)C₁₋₃alkyleneC(=O)OR^a, arylO-C₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^a, C₁₋₄alkyleneC(=O)OR^a, OC₁₋₄alkyleneC(=O)OR^a, C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)-OR^a, C(=O)NR^aSO₂R^a, C₁₋₄alkyleneN(R^a)₂, C₂₋₆alkenylene-N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneHet, OC₂₋₄alkyleneN(R^a)₂, OC₁₋₄alkyleneCH(OR^b)CH₂N(R^a)₂,

OC₁₋₄alkyleneHet, OC₂₋₄alkyleneOR^a, OC₂₋₄alkyleneNR^aC(=O)-OR^a, NR^aC₁₋₄alkyleneN(R^a)₂, NR^aC(=O)R^a, NR^aC(=O)N(R^a)₂, N(SO²C₁₋₄alkyl)₂, NR^a(SO₂C₁₋₄alkyl), SO₂N(R^a)₂, OSO₂CF₃, C₁₋₃alkylenearyl, C₁₋₄alkyleneHet, C₁₋₆alkyleneOR^b, C₁₋₃alkyleneN(R^a)₂, C(=O)N(R^a)₂, NHC(=O)C_{1-C3}alkylenearyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, arylOC₁₋₃alkylene-N(R^a)₂, arylOC(=O)R^b, NHC(=O)C₁₋₃alkyleneC₃₋₈heterocycloalkyl, NHC(=O)C₁₋₃alkyleneHet, OC₁₋₄alkyleneOC₁₋₄alkylene-C(=O)OR^b, C(=O)C₁₋₄alkyleneHet, and NHC(=O)haloC₁₋₆alkyl; or R¹ and R² are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R³ is selected from the group consisting of optionally substituted hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₄alkylenecycloalkyl, C₂₋₆alkenyl, C₁₋₃alkylenearyl, arylC₁₋₃alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)₂, C(=S)N(R^a)₂, SO₂R^a, SO₂N(R^a)₂, S(=O)R^a, S(=O)N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, C(=O)C₁₋₄alkylenearyl, C(=O)C₁₋₄alkyleneheteroaryl, C₁₋₄alkylenearyl substituted with one or more of SO₂N(R^a)₂, N(R^a)₂, C(=O)OR^a, NR^aSO₂CF₃, CN, NO₂, C(=O)R^a, OR^a, C₁₋₄alkyleneN(R^a)₂, and OC₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneheteroaryl, C₁₋₄alkylene-Het, C₁₋₄alkyleneC(=O)C₁₋₄alkylenearyl, C₁₋₄alkyleneC(=O)-C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneC(=O)Het, C₁₋₄alkyleneC(=O)N(R^a)₂, C₁₋₄alkyleneOR^a, C₁₋₄alkyleneNR^aC(=O)R^a, C₁₋₄alkyleneOC₁₋₄alkyleneOR^a, C₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneC(=O)OR^a, and C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₃alkyleneN(R^c)₂, aryl, arylC₁₋₃alkyl, C₁₋₃alkylenearyl,

heteroaryl, heteroarylC₁₋₃alkyl, and C₁₋₃alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^b is selected from the group consisting of hydrogen, C₁₋₆alkyl, heteroC₁₋₃alkyl, C₁₋₃alkyleneheteroC₁₋₃alkyl, arylheteroC₁₋₃alkyl, and aryl, heteroaryl, arylC₁₋₃alkyl, heteroarylC₁₋₃alkyl, C₁₋₃alkylenearyl, and C₁₋₃alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C₁₋₄alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts and or solvates,

in an amount sufficient to inhibit phosphatidylinositol 3-kinase delta activity in said leukocytes.

2. (Original) The method according to
claim 1 wherein the compound is selected from the group
consisting of

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-6,7-
dimethoxy-3H-quinazolin-4-one
2-(6-aminopurin-o-ylmethyl)-6-bromo-3-(2-chlorophenyl)-
3H-quinazolin-4-one
2-(6-aminopurin-o-ylmethyl)-3-(2-chlorophenyl)-7-
fluoro-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-6-chloro-3-(2-chlorophen-
yl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-
fluoro-3H-quinazolin-4-one
2-(6-aminopurin-o-ylmethyl)-5-chloro-3-(2-chlorophen-
yl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-
methyl-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-8-chloro-3-(2-chlorophen-
yl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-biphenyl-2-yl-5-chloro-
3H-quinazolin-4-one
5-chloro-2-(9H-purin-6-ylsulfanyl methyl)-3-o-tolyl-3H-
quinazolin-4-one
5-chloro-3-(2-fluorophenyl)-2-(9H-purin-6-ylsulfanyl-
methyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-fluorophen-
yl)-3H-quinazolin-4-one
3-biphenyl-2-yl-5-chloro-2-(9H-purin-6-ylsulfanyl-
methyl)-3H-quinazolin-4-one
5-chloro-3-(2-methoxyphenyl)-2-(9H-purin-6-ylsulfanyl-
methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6,7-dimethoxy-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
6-bromo-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-8-trifluoromethyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-benzo[g]quinazolin-4-one
6-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
8-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-7-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-7-nitro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6-hydroxy-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
5-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6,7-difluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-isopropylphenyl)-5-methyl-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

3-(2-fluorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-5-chloro-3-o-tolyl-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-methoxy-phenyl)-3H-quinazolin-4-one
2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one
3-cyclopropylmethyl-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-cyclopropylmethyl-5-methyl-3H-quinazolin-4-one
2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropyl-methyl-5-methyl-3H-quinazolin-4-one
5-methyl-3-phenethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-phenethyl-3H-quinazolin-4-one
3-cyclopentyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-cyclopentyl-5-methyl-3H-quinazolin-4-one
3-(2-chloropyridin-3-yl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-chloropyridin-3-yl)-5-methyl-3H-quinazolin-4-one
3-methyl-4-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanyl-methyl)-4H-quinazolin-3-yl]-benzoic acid
3-cyclopropyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one

5-methyl-3-(4-nitrobenzyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
3-cyclohexyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one
2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one
5-methyl-3-(E-2-phenylcyclopropyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-5-fluoro-2-[(9H-purin-6-ylamino)-methyl]-3H-quinazolin-4-one
2-[(2-amino-9H-purin-6-ylamino)methyl]-3-(2-chlorophenyl)-5-fluoro-3H-quinazolin-4-one
5-methyl-2-[(9H-purin-6-ylamino)methyl]-3-o-tolyl-3H-quinazolin-4-one
2-[(2-amino-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-[(2-fluoro-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one
(2-chlorophenyl)-dimethylamino-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one
5-(2-benzyloxyethoxy)-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
6-aminopurine-9-carboxylic acid 3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl ester
N-[3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl]-2-(9H-purin-6-ylsulfanyl)-acetamide
2-[1-(2-fluoro-9H-purin-6-ylamino)ethyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one

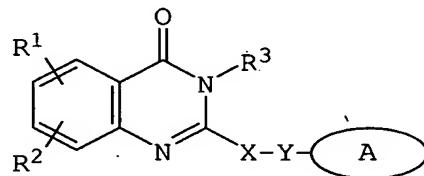
5-methyl-2-[1-(9H-purin-6-ylamino)ethyl]-3-o-tolyl-3H-quinazolin-4-one
2-(6-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-7-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
2-(amino-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(4-amino-1,3,5-triazin-2-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(7-methyl-7H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(2-oxo-1,2-dihydro-pyrimidin-4-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-purin-7-ylmethyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-purin-9-ylmethyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(9-methyl-9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
2-(2,6-Diamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(5-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(2-methylsulfanyl-9H-purin-6-ylsulfanyl-methyl)-3-o-tolyl-3H-quinazolin-4-one
2-(2-hydroxy-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(1-methyl-1H-imidazol-2-ylsulfanyl methyl)-3-o-tolyl-3H-quinazolin-4-one
5-methyl-3-o-tolyl-2-(1H-[1,2,4]triazol-3-ylsulfanyl-methyl)-3H-quinazolin-4-one
2-(2-amino-6-chloro-purin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(6-aminopurin-7-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-3-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(6-amino-9H-purin-2-ylsulfanyl methyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(2-amino-6-ethylamino-pyrimidin-4-ylsulfanyl methyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(3-amino-5-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(5-amino-3-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(6-methylaminopurin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
2-(6-benzylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
2-(2,6-diaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
5-methyl-2-(9H-purin-6-ylsulfanyl methyl)-3-o-tolyl-3H-quinazolin-4-one
3-isobutyl-5-methyl-2-(9H-purin-6-ylsulfanyl methyl)-3H-quinazolin-4-one
N-{2-[5-Methyl-4-oxo-2-(9H-purin-6-ylsulfanyl methyl)-4H-quinazolin-3-yl]-phenyl}-acetamide

5-methyl-3-(E-2-methyl-cyclohexyl)-2-(9H-purin-6-yl-sulfanyl methyl)-3H-quinazolin-4-one
2-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanyl methyl)-4H-quinazolin-3-yl]-benzoic acid
3-{2-[(2-dimethylaminoethyl)methylamino]phenyl}-5-methyl-2-(9H-purin-6-ylsulfanyl methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-5-methoxy-2-(9H-purin-6-ylsulfanyl methyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-5-(2-morpholin-4-yl-ethylamino)-2-(9H-purin-6-ylsulfanyl methyl)-3H-quinazolin-4-one
3-benzyl-5-methoxy-2-(9H-purin-6-ylsulfanyl methyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methyl-pyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylamino-propoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-
ynyloxyphenyl)-3H-quinazolin-4-one; and
2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-
quinazolin-3-yl)-phenoxy}-acetamide.

3. (Currently amended) A method of inhibiting kinase activity of a phosphatidylinositol 3-kinase delta polypeptide comprising a step of contacting the polypeptide with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of C(R^b)₂, CH₂CHR^b, and CH=C(R^b);

Y is selected from the group consisting of null, S, SO, and SO₂, NH, O, C(=O), OC(=O), C(=O)O, and NHC(=O)CH₂S;

R¹ and R², independently, are selected from the group consisting of hydrogen, C₁₋₆alkyl, aryl, heteroaryl, halo, NHC(=O)C₁₋₃alkyleneN(R^a)₂, NO₂, OR^a, CF₃, OCF₃, N(R^a)₂, CN, OC(=O)R^a, C(=O)R^a, C(=O)OR^a, arylOR^b, Het, NR^aC(=O)C₁₋₃alkyleneC(=O)OR^a, arylO-C₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^a, C₁₋₄alkyleneC(=O)OR^a, OC₁₋₄alkyleneC(=O)OR^a, C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a, C(=O)NR^aSO₂R^a, C₁₋₄alkyleneN(R^a)₂, C₂₋₆alkenyleneN(R^a)₂, C(=O)NR^aC₁₋₄alkyleneHet,

OC₂₋₄alkyleneN(R^a)₂, OC₁₋₄alkyleneCH(OR^b)CH₂N(R^a)₂, OC₁₋₄alkyleneHet, OC₂₋₄alkyleneOR^a, OC₂₋₄alkylene-NR^aC(=O)OR^a, NR^aC₁₋₄alkyleneN(R^a)₂, NR^aC(=O)R^a, NR^aC(=O)-N(R^a)₂, N(SO²C₁₋₄alkyl)₂, NR^a(SO₂C₁₋₄alkyl), SO₂N(R^a)₂, OSO₂CF₃, C₁₋₃alkylenearyl, C₁₋₄alkyleneHet, C₁₋₆alkylene-OR^b, C₁₋₃alkyleneN(R^a)₂, C(=O)N(R^a)₂, NHC(=O)C_{1-C₃alkyl-enearyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, aryl-OC₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^b, NHC(=O)C₁₋₃alkylene-C₃₋₈heterocycloalkyl, NHC(=O)C₁₋₃alkyleneHet, OC₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^b, C(=O)C₁₋₄alkyleneHet, and NHC(=O)haloC₁₋₆alkyl;}

or R¹ and R² are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R³ is selected from the group consisting of optionally substituted hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₄alkylenecycloalkyl, C₂₋₆alkenyl, C₁₋₃alkylenearyl, arylC₁₋₃alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)₂, C(=S)N(R^a)₂, SO₂R^a, SO₂N(R^a)₂, S(=O)R^a, S(=O)N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, C(=O)C₁₋₄alkylenearyl, C(=O)C₁₋₄alkyleneheteroaryl, C₁₋₄alkylenearyl substituted with one or more of SO₂N(R^a)₂, N(R^a)₂, C(=O)OR^a, NR^aSO₂CF₃, CN, NO₂, C(=O)R^a, OR^a, C₁₋₄alkyleneN(R^a)₂, and OC₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneHet, C₁₋₄alkyleneC(=O)C₁₋₄alkylenearyl, C₁₋₄alkylene-C(=O)C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneC(=O)Het, C₁₋₄alkyleneC(=O)N(R^a)₂, C₁₋₄alkyleneOR^a, C₁₋₄alkylene-NR^aC(=O)R^a, C₁₋₄alkyleneOC₁₋₄alkyleneOR^a, C₁₋₄alkylene-N(R^a)₂, C₁₋₄alkyleneC(=O)OR^a, and C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C_{1-6} alkyl, C_{3-8} cycloalkyl, C_{3-8} heterocycloalkyl, C_{1-3} alkyleneN(R^c)₂, aryl, aryl C_{1-3} alkyl, C_{1-3} alkylenearyl, heteroaryl, heteroaryl C_{1-3} alkyl, and C_{1-3} alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

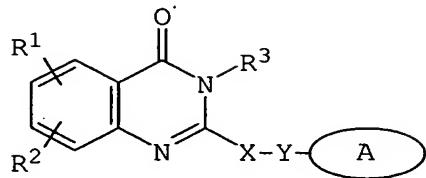
R^b is selected from the group consisting of hydrogen, C_{1-6} alkyl, hetero C_{1-3} alkyl, C_{1-3} alkylenehetero C_{1-3} alkyl, arylhetero C_{1-3} alkyl, and aryl, heteroaryl, aryl C_{1-3} alkyl, heteroaryl C_{1-3} alkyl, C_{1-3} alkylenearyl, and C_{1-3} alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C_{1-6} alkyl, C_{3-8} cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C_{1-4} alkyl or $C(=O)OR^a$;

and pharmaceutically acceptable salts and or solvates thereof.

4. (Currently amended) A compound having a general structural formula



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the cyclic system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b , and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO , and SO_2 , NH, O, $C(=O)$, $OC(=O)$, $C(=O)O$, and $NHC(=O)CH_2S$;

R^1 and R^2 , independently, are selected from the group consisting of hydrogen, C_{1-6} alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}$ alkylene $N(R^a)_2$, NO_2 , OR^a , CF_3 , OCF_3 , $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, aryl- OR^b , Het, $NR^aC(=O)C_{1-3}$ alkylene $C(=O)OR^a$, $arylOC_{1-3}$ alkylene- $N(R^a)_2$, $arylOC(=O)R^a$, C_{1-4} alkylene $C(=O)OR^a$, OC_{1-4} alkylene- $C(=O)OR^a$, C_{1-4} alkylene OC_{1-4} alkylene $C(=O)OR^a$, $C(=O)-NR^aSO_2R^a$, C_{1-4} alkylene $N(R^a)_2$, C_{2-6} alkenylene $N(R^a)_2$, $C(=O)-NR^aC_{1-4}$ alkylene OR^a , $C(=O)NR^aC_{1-4}$ alkyleneHet, OC_{2-4} alkylene- $N(R^a)_2$, OC_{1-4} alkylene $CH(OR^b)CH_2N(R^a)_2$, OC_{1-4} alkyleneHet, OC_{2-4} alkylene OR^a , OC_{2-4} alkylene $NR^aC(=O)OR^a$, NR^aC_{1-4} alkylene- $N(R^a)_2$, $NR^aC(=O)R^a$, $NR^aC(=O)N(R^a)_2$, $N(SO_2C_{1-4}$ alkyl) $_2$,

NR^a(SO₂C₁₋₄alkyl), SO₂N(R^a)₂, OSO₂CF₃, C₁₋₃alkylenearyl, C₁₋₄alkyleneHet, C₁₋₆alkyleneOR^b, C₁₋₃alkyleneN(R^a)₂, C(=O)N(R^a)₂, NHC(=O)C_{1-C₃}alkylenearyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, aryloc₁₋₃alkyleneN(R^a)₂, aryl-OC(=O)R^b, NHC(=O)C₁₋₃alkyleneC₃₋₈heterocycloalkyl, NHC(=O)C₁₋₃alkyleneHet, OC₁₋₄alkyleneOC₁₋₄alkylene-C(=O)OR^b, C(=O)C₁₋₄alkyleneHet, and NHC(=O)haloC₁₋₆alkyl; or R¹ and R² are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R³ is selected from the group consisting of optionally substituted hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₄alkylenealkyl, C₂₋₆alkenyl, C₁₋₃alkylenearyl, arylC₁₋₃alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)₂, C(=S)N(R^a)₂, SO₂R^a, SO₂N(R^a)₂, S(=O)R^a, S(=O)N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, C(=O)C₁₋₄alkylenearyl, C(=O)C₁₋₄alkyleneheteroaryl, C₁₋₄alkylenearyl substituted with one or more of SO₂N(R^a)₂, N(R^a)₂, C(=O)OR^a, NR^aSO₂CF₃, CN, NO₂, C(=O)R^a, OR^a, C₁₋₄alkyleneN(R^a)₂, and OC₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneheteroaryl, C₁₋₄alkylene-Het, C₁₋₄alkyleneC(=O)C₁₋₄alkylenearyl, C₁₋₄alkyleneC(=O)-C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneC(=O)Het, C₁₋₄alkyleneC(=O)N(R^a)₂, C₁₋₄alkyleneOR^a, C₁₋₄alkyleneNR^aC(=O)R^a, C₁₋₄alkyleneOC₁₋₄alkyleneOR^a, C₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneC(=O)OR^a, and C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₃alkyleneN(R^c)₂, aryl, arylC₁₋₃alkyl, C₁₋₃alkylenearyl, heteroaryl, heteroarylC₁₋₃alkyl, and C₁₋₃alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

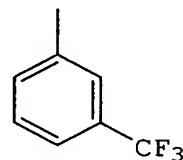
R^b is selected from the group consisting of hydrogen, C₁₋₆alkyl, heteroC₁₋₃alkyl, C₁₋₃alkyleneheteroC₁₋₃alkyl, arylheteroC₁₋₃alkyl, and aryl, heteroaryl, arylC₁₋₃alkyl, heteroarylC₁₋₃alkyl, C₁₋₃alkylenearyl, and C₁₋₃alkyleneheteroaryl;

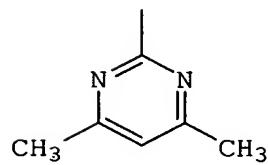
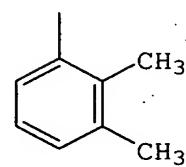
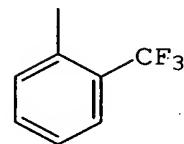
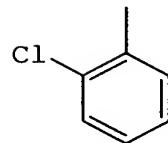
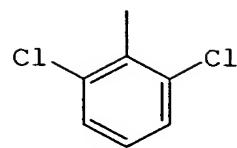
R^c is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C₁₋₄alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts and or solvates thereof,

with the provisos that if X-Y is CH₂S, then R³ is different from



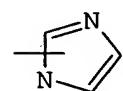
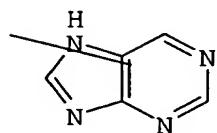
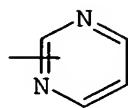


and if X-Y is CH_2S , then R^3 is different from
 $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$ substituted phenyl.

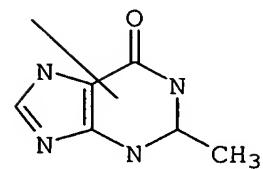
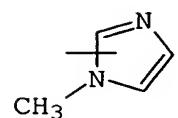
5. (Original) The compound of claim 4
wherein X is selected from the group consisting of CH_2 ,
 CH_2CH_2 , $\text{CH}=\text{CH}$, $\text{CH}(\text{CH}_3)$, $\text{CH}(\text{CH}_2\text{CH}_3)$, and $\text{CH}_2\text{CH}(\text{CH}_3)$, and
 $\text{C}(\text{CH}_3)_2$.

6. (Original) The compound of claim 5
wherein Y is selected from the group consisting of
null, S, and NH.

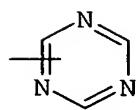
7. (Original) The compound of claim 5
wherein the A ring system is selected from the group
consisting of



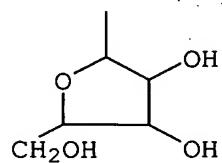
, and



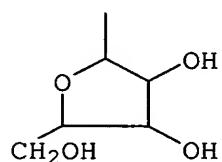
, and



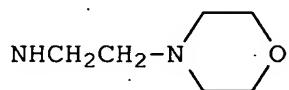
8. (Original) The compound of claim 7 wherein the A ring system is substituted with one to three substituents selected from the group consisting of $N(R^a)_2$, halo, C_{1-3} alkyl, $S(C_{1-3}$ alkyl), OR^a , and



9. (Original) The compound of claim 8 wherein the A ring system is substituted with one to three substituents selected from the group consisting of NH_2 , $NH(CH_3)$, $N(CH_3)_2$, $NHCH_2C_6H_5$, $NH(C_2H_5)$, Cl, F, CH_3 , SCH_3 , OH, and



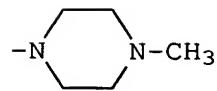
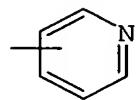
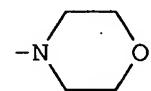
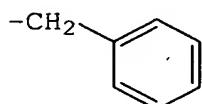
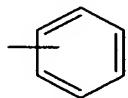
10. (Original) The compound of claim 5 wherein R¹ and R², independently, are selected from the group consisting of hydrogen, OR^a, halo, C₁₋₆alkyl, CF₃, NO₂, N(R^a)₂, NR^aC₁₋₃alkyleneN(R^a)₂, and OC₁₋₃alkyleneOR^a. Specific substituents include, but are not limited to, H, OCH₃, Cl, Br, F, CH₃, CF₃, NO₂, OH, N(CH₃)₂,

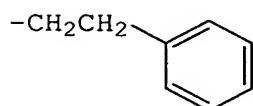
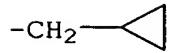
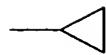


and O(CH₂)₂OCH₂C₆H₅, or R¹ and R² are taken together to form a five- or six-membered ring.

11. (Original) The compound of claim 5 wherein R³ is selected from the group consisting of C₁₋₆alkyl, aryl, heteroaryl, C₃₋₈cycloalkyl, C₃₋₈hetero-cycloalkyl, C(=O)OR^a, C₁₋₄alkyleneHet, C₁₋₄alkyleneCyclo-alkyl, C₁₋₄alkylenearyl, C₁₋₄alkyleneC(=O)C₁₋₄alkylene-aryl, C₁₋₄alkyleneC(=O)OR^a, C₁₋₄alkyleneC(=O)N(R^a)₂, C₁₋₄alkyleneC(=O)Het, C₁₋₄alkyleneN(R^a)₂, and C₁₋₄alkyleneNR^aC(=O)R^a.

12. (Original) The compound of claim 5
wherein R³ is selected from the group consisting of
OR^a, C₁₋₆alkyl, aryl, heteroaryl, NO₂, N(R^a)₂, NR^aC(=O)R^a,
C(=O)OC₂H₅, CH₂CH(CH₃)₂,



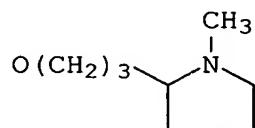


, and



13. (Original) The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of halo, OR^a , $C_{1-6}\text{alkyl}$, aryl, heteroaryl, NO_2 , $N(R^a)_2$, $NR^aSO_2CF_3$, $NR^aC(=O)R^a$, $C(=O)OR^a$, $SO_2N(R^a)_2$, CN , $C(=O)R^a$, $C_{1-4}\text{alkylene}N(R^a)_2$, $OC_{1-4}\text{alkyl-}$ ene $C\equiv CR^a$, $OC_{1-4}\text{alkylene}C(=O)N(R^a)_2$, $OC_{1-4}\text{alkylenearyl}$, $OC_{1-4}\text{alkyleneheteroaryl}$, $OC_{1-4}\text{alkyleneHet}$, $OC_{1-4}\text{alkyl-}$ ene $N(R^a)_2$, and $N(R^a)C_{1-4}\text{alkylene}N(R^a)_2$.

14. (Original) The compound of claim 4 wherein R³ is substituted with a substituent selected from the group consisting of Cl, F, CH₃, CH(CH₃)₂, OH, OCH₃, OCH₂C₆H₅, O(CH₂)₃N(CH₃)₂, OCH₂C≡CH, OCH₂C(=O)NH₂, C₆H₅, NO₂, NH₂, NHC(=O)CH₃, CO₂H, and N(CH₃)CH₂CH₂N(CH₃)₂, and



15. The compound of claim 4 selected from the group consisting of:

2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-[2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl]-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylaminopropoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynylloxyphenyl)-3H-quinazolin-4-one; and
2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl)-phenoxy}-acetamide.